

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An objective lens for an optical recording/reproducing device which records/reproduces information to/from a recording medium utilizing holography, said objective lens converging a collimated beam in the vicinity of a recording surface of the recording medium to record/reproduce the information, said objective lens comprising:

a single lens element having an incident surface to which the collimated beam enters and an exit surface being opposite to said incident surface;

said incident surface and said exit surface being configured to be rotationally symmetrical aspherical surfaces;

at least within an effective diameter of said single lens element, said incident surface and said exit surface being symmetrical with respect to a plane perpendicular to an optical axis of said single lens element and having the same shape;

said single lens element having positive refractive power;

wherein the rotationally symmetrical aspherical surface of each of said two refractive surfaces is expressed by a formula (1) below:

$$F(h) = \frac{h^2/r}{1 + \sqrt{1 - (1 + K)\left(\frac{1}{r}\right)^2 h^2}} + A_4 h^4 + A_6 h^6 + A_8 h^8 + A_{10} h^{10} \dots (1)$$

where F(h) is a sag amount (i.e., a distance from a plane, which is tangential to the rotationally symmetrical aspherical surface at the optical axis, to the rotationally symmetrical aspherical surface at a position whose height with respect to the optical axis is h), r is a radius of curvature of the rotationally symmetrical aspherical surface at the

optical axis, K is a conical coefficient, and A_4, A_6, A_8 , and A_{10} are fourth, sixth, eighth, and tenth order aspherical coefficients, respectively,

wherein a first derivative of the sag amount $F(h)$ with respect to h satisfies a condition (2) and a second derivative of the sag amount $F(h)$ with respect to h satisfies a condition (3):

$$-0.35 \leq dF(h)/dh \leq +0.35 \quad \dots (2)$$

$$+0.3 \leq d^2F(h)/d^2h \leq +1.3 \quad \dots (3).$$

2. (Cancelled)

3. (Currently Amended) The objective lens according to claim [[2]] 1,

wherein said objective lens satisfies a condition (4):

$$0.9 \leq r/tc \leq 1.5 \quad \dots (4)$$

where r represents the radius of curvature on the optical axis, and tc represents a central lens thickness of said objective lens.

4. (Original) The objective lens according to claim 1,

wherein an image height y of an image formed by said objective lens is defined by the following equation (5):

$$y = f \sin W \quad \dots (5)$$

where f represents a focal length of said objective lens and W represents a field angle,

wherein, with regard to each of a beam entering from said incident surface and a

beam entering from said exit surface, an entrance pupil plane coincides with a front focal point and an image point coincides with a back focal point.

5. (Original) The objective lens according to claim 1,

wherein, with regard to each of a beam entering from said incident surface and a beam entering from said exit surface, said objective lens has wavefront aberration performance less than or equal to Marechal criterion within a maximum field angle range.

6. (Original) The objective lens according to claim 5,

wherein half of the maximum field angle is larger than or equal to 3° .